JCM Products
Quick Reference Guide

VEGA™ Units

NOTE: Due to advancements in related industry technologies and future product development, the information in this guide is subject to change without notice.

For more information about product set-up, use, testing procedures and troubleshooting methods, please contact the Technical Support Division of Customer Service via the email addresses listed below:

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Part No. 960-000163R_Rev. 2

Cleaning Procedure

To clean the VEGA Unit Lenses, use a lint-free Microfiber Cloth and a mild non-abrasive detergent such as liquid dish soap mixed with water. It is important to keep the Banknote path, Rollers, and Belts clean. Use the lint-free cloth or a Cotton Swab to wipe dirt and stains from the surfaces of the Magnetic and Optical Sensors, Rollers and Belts.

The Sensor Lenses are transparent, and made of a Polymer material; handle them with care. Repeat the cleaning process as needed until the Transport path is free of contaminants.

Sensor Cleaning Procedure

To properly clean the VEGA Unit's Sensors, proceed as follows:

1. Turn the VEGA Unit's Power OFF.
2. Open the Upper Validation Section.
3. Clean the appropriate path in the location of each Sensor as well as the Sensor itself.

WARNING: Do not use Alcohol, paint thinner, solvents or citrus based solutions for cleaning any surfaces!

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Software Download Procedures

Perform the following steps to download the VEGA Operating Software Application. Before downloading the Software, copy the Downloader Application (UBA Downloader Version 2.10 specified), and the VEGA Operating Software Application into a new Folder named VEGA created on the PC (e.g., C:\VEGA).

1. Turn the VEGA Unit's Power OFF.
2. Set DIP Switch Block No.1, Switches 1,7, & 8 to ON.
3. Turn VEGA Unit's Power ON.
4. Confirm that the Front Panel LED blinks at a **Green** Color Rate.
5. Launch the copied Downloader Application (UBA Downloader Version 2.10) from the recently created PC VEGA Folder (C:\VEGA).
6. When Program Installation Screen appears, Mouse-click on the "Browse" Screen Button and select the desired VEGA Software (i.e., VEGA_EUR) for download into VEGA Flash Memory; then Mouse-click on the "Open" Screen Button to launch the selected File.
7. When the UBA Downloader Screen reappears, Mouse-click on the center "Download" Screen Button to begin downloading the Software into VEGA Flash Memory. The downloading Screen will display a Progress Barograph during the download operation.

   NOTE: The Front Panel LED lights Yellow during a download.
8. Once the download is complete, the Front Panel LED Display will turn a steady **Blue** Color, and then the VEGA will return to a Start-up Process condition (e.g., the Front Panel LED Display blinks at a **Green** Color Rate).
9. When downloading is complete, confirm that the Host's Checksum and the devices Checksum match each other (e.g., [CRC: XXXX = CRC: XXXX]).

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NOTE: If the Host and the Device CRC Checksums DO NOT match, the download did not end correctly. Confirm the download procedure is correct, and re-perform the download Procedure again.

10. After verifying that a CRC match between both Checksums exists, Mouse-click on the "OK" Dialog Screen Button to close the UBA Downloader Program Screen.

*NOTE: If the word "*Manual*" appears in the "Reset" Pull-down Menu, the Front Panel LED will sustain a steady Blue color. In this case, return to the Start-up condition by pressing the adjacent "*Manual Reset*" Screen Button located to the right of the Pull-down Menu (The Front Panel LED will then blink at a Green Color Rate.)*

*NOTE: If a download error occurs, the Front Panel LED will light a steady **Red** Color.*

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Performance Test Mode Activation

Perform the following steps to activate the VEGA Unit's self contained Performance Tests:

1. Set DIP Switch Block DS 1, Switch #1 to ON.
2. Turn the VEGA Unit's Power ON, and the performance Test Mode will activate.

NOTE: When the VEGA Performance Test Mode begins, the Front Panel LED will slowly blink at a Green Color Rate.

Table 1 and Table 2 lists the various Performance Test DIP Switch Settings for each Type of Test.

Table 1 Performance Test DIP Switch Block 1 Configuration Settings

Test Type	DIP Switch Block 1 Switch Number							
	1	2	3	4	5	6	7	8
DIP Switch Test	ON	ON	ON	ON	ON	ON	ON	ON
Feed Motor Normal Rotation Test	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Feed Motor Reverse Rotation Test	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
Stacker Motor Test	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
Aging Test	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
Off-line Banknote Acceptance Test	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
Sensor Test	ON	ON	ON	ON	ON	OFF	OFF	OFF
Stand-by Color Indication (Cycling Rainbow Gradation)*	ON	ON	OFF	OFF	OFF	OFF	ON	OFF
Stand-by Color Indication (Green)†	ON	OFF	ON	OFF	OFF	OFF	ON	OFF
Stand-by Color Indication (Blue)‡	ON	OFF	OFF	ON	OFF	OFF	ON	OFF
ccTalk Encryption Code Initialization**	ON	ON	ON	ON	ON	ON	OFF	OFF

* See Stand-by Mode LED Assignment Indication on page 2-3 of the Vega Service Manual for making a Rainbow (Gradation) setting.

† See Stand-by Mode LED Assignment Indication on page 2-3 of the Vega Service Manual for making the GREEN Color setting.

‡ See Stand-by Mode LED Assignment Indication on page2-3 of the Vega Service Manual for making the BLUE Color setting.

** See Rewriting ccTalk Encryption Code (Initialize) on page 2-3 of the Vega Service Manual for making the communications Protocol setting.

Table 2 Performance Test DIP Switch Block 2 Configuration Settings

Test Type	DIP Switch Block 2 Switch Number							
	1	2	3	4	5	6	7	8
DIP Switch Test	ON	ON	ON	ON	ON	ON	ON	ON
Feed Motor Normal Rotation Test	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Feed Motor Reverse Rotation Test	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Stacker Motor Test	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Aging Test	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Off-line Banknote Acceptance Test	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Sensor Test	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Stand-by Color Indication (Cycling Rainbow Gradation)*	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Stand-by Color Indication (Green)†	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Stand-by Color Indication (Blue)‡	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
ccTalk Encryption Code Initialization**	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

* See Stand-by Mode LED Assignment Indication on page 2-3 of the Vega Service Manual for making a Rainbow (Gradation) setting.

† See Stand-by Mode LED Assignment Indication on page 2-3 of the Vega Service Manual for making the GREEN Color setting.

‡ See Stand-by Mode LED Assignment Indication on page2-3 of the Vega Service Manual for making the BLUE Color setting.

** See Rewriting ccTalk Encryption Code (Initialize) on page 2-3 of the Vega Service Manual for making the communications Protocol setting.

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Performance Test Initiation

Set the various DIP Switches listed in Tables 1 & 2 for each Test desired AFTER the Performance Test Mode has been activated. Once the DIP Switches on both Block 1 and Block 2 have been set for the desired Test; set DIP Switch DS1, Switch #1 to OFF to begin the particular Test selected.

NOTE: Reset DIP Switch DS1, Switch #1 to ON again to STOP the current Test, and return to the Stand-by Mode. After performing an "Off-line" Banknote Acceptance Test, cycle the VEGA Unit's Power OFF & ON to return to the Stand-by Mode. Unless the power is turned OFF & ON, the next Test WILL NOT run.

DIP Switch Test

Perform the following steps to test the functionality of each DIP Switch Block:

1. Ensure that the VEGA Unit's Power is OFF.
2. Set all Switches on DIP Switch Blocks DS1 and DS2 to ON.
3. Turn the VEGA Unit's Power ON.
4. Set DIP Switch Block DS1, Switch #1 to OFF. When the DIP Switch Test begins, the Front LED will extinguish (go out).
5. Set the ODD numbered DIP Switches on Switch Blocks DS1 and DS2 to OFF. The Front Panel LED display will blink at a **Yellow** Color Rate.
6. Set the EVEN numbered DIP Switches on Switch Blocks DS1 and DS2 to OFF. The Front Panel LED Display will blink at a **Blue** Color Rate if all the DIP Switches functioned correctly.

NOTE: If the DIP Switches were set incorrectly during the Test, the Front Panel LED Display will flash Red, indicating a test failure. However, if the DIP Switches were set correctly, and the LED still flashes Red, then a DIP Switch failure is indicated.

FEED MOTOR FORWARD ROTATION TEST

Perform the following steps to test the normal forward rotational functionality of the Feed Motor:

1. Ensure the Vega Unit's Power is OFF.
2. Set DIP Switch Block DS1, Switch #1 to ON.
3. Turn the VEGA Unit's Power ON.
4. Set DIP Switch Block DS1, Switch #1 to OFF. When the Feed Motor Forward Rotational Test begins, the Front Panel LED will extinguish (go out).
5. If the Feed Motor correctly rotates in a forward-direction, the Front Panel LED Display will be extinguished (dark) and forward rotation will continue.
6. To end the Forward Feed Motor Test, turn the VEGA Unit's Power OFF, or set DIP Switch Block DS1, Switch #1 to ON.

NOTE: If the Front Panel LED Display blinks ANY White Error sequence listed in the Table 3 Chart, the Feed Motor's forward rotation is abnormal.

Table 3 Transport Motor Abnormal Error Codes

LED Color	Blink Sequence	Error Indication
White	3	Feed Motor Low Speed Problem
	5	Feed Motor High Speed Problem
	7	Feed Motor Lock-up Problem

FEED MOTOR REVERSE ROTATION TEST

Perform the following steps to test the normal reverse rotational functionality of the Feed Motor:

1. Ensure the Vega Unit's Power is OFF.
2. Set DIP Switch Block DS1, Switches #1 and #2 ON.
3. Turn the VEGA Unit's Power ON.
4. Set DIP Switch Block DS1, Switch #1 to OFF. When the Feed Motor Reverse Rotational Test begins, the Front Panel LED will extinguish (go out).

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5. If the Feed Motor correctly rotates in a reverse-direction, the Front Panel LED Display will be extinguished (dark) and reverse rotation will continue.

To end the Reverse Feed Motor Test, turn the VEGA Unit's Power OFF, or set DIP Switch Block DS1, Switch #1 to ON.

NOTE: If the Front Panel LED Display blinks ANY White Error sequence listed in Table 3 on page 8, the Feed Motor's reverse rotation is abnormal.

STACKER MOTOR TEST

Perform the following steps to test the Stacker Motor's rotational functionality:

1. Ensure that the VEGA Unit's Power is OFF.
2. Set DIP Switch Block DS1, Switches #1 and #3 ON.
3. Turn the VEGA Unit's Power ON.
4. Set DIP Switch Block DS1, Switch #1 OFF. When the Stacker Motor Test begins, the Front Panel LED will extinguish (go out).
5. If the Stacker Motor rotates forward and reverse correctly, the Front Panel LED Display will be extinguished (dark), and the Motor will continue operating in a forward/reverse direction.
6. To finish the Stacker Motor Test, turn the VEGA Unit's power OFF, or set DIP Switch Block DS1, Switch #1 ON.

NOTE: If the Front Panel LED blinks ANY Error sequence indicated in Table 4, the Stacker Motor's rotation is abnormal.

Table 4 Stacker Motor Abnormal Error Codes

LED Color	Blink Sequence	Error Indication
Red	5	Cash Box Seating Problem
Purple	5	Stacker Motor Lock-up
Purple	7	Stacker Motor Gear Problem
Orange	3	Stacker Full

AGING TEST

The Aging Test repeatedly performs basic Validator functions such as feeding, transporting and stacking operations.
Perform the following steps to repeatedly Test the VEGA Unit's basic functional performance:

1. Ensure that the VEGA Unit's Power is OFF.
2. Set DIP Switch Block DS1, Switches #1, #2 and #4 ON.
3. Turn the VEGA Unit's Power ON.
4. Set DIP Switch Block DS1, Switch #1 OFF. When the Aging Test begins, the Front Panel LED will extinguish (go out).
5. If operation is normal, the Unit will perform the following five functions repetitively until the Test is stopped:
   a. Feed Motor Reverse Rotation Test.
   b. Interval Test (20 sec, LED lights White).
   c. Feed Motor Forward Rotation.
   d. Stacking Test.
   e. Interval Test (20 sec, LED lights White).
   f. To end the Aging Test, turn the VEGA Unit's Power OFF, or set DIP Switch Block DS1, Switch #1 to ON.

NOTE: If the Front Panel LED blinks ANY Error sequence indicated in Table 5, the Feeding and/or Stacking function is abnormal.

Table 5 Feeding/Stacking Abnormal Error Codes

LED Color	Blink Sequence	Error Indication
White	3	Feed Motor Low Speed Problem
	5	Feed Motor High Speed Problem
	7	Feed Motor Lock-up
Red	5	Cash Box Seating Problem
Purple	5	Stacker Motor Lock-up
	7	Stacker Motor Gear Problem
Orange	3	Stacker Full

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OFF-LINE BANKNOTE ACCEPTANCE TEST

Perform the following steps to perform the VEGA Unit's Off-line Banknote Acceptance Test:

1. Ensure that the VEGA Unit's Power is OFF.
2. Set DIP Switch Block DS1, Switch #1, #3, & #5 to ON.
3. Turn the VEGA Unit's Power ON.
4. Set DIP Switch Block DS1, Switch #1 to OFF. When the off-line Banknote Acceptance Test begins, the Front Panel LED will extinguish (goes out).
   Wait for the Front Panel LED Display to indicate a Stand-by Mode initialization blinking sequence; then insert Banknotes. When the VEGA receives the Banknotes, the Front Panel LED will blink an Emerald **Green** Color.

The acceptable denominations are identified by the following Front Panel LED blink sequences:

NOTE: Euros are shown as an example.

- €5 Denomination Values = 1 Blink
- €10 Denomination Values = 2 Blinks
- €20 Denomination Values = 3 Blinks
- €50 Denomination Values = 4 Blinks
- €100 Denomination Values = 5 Blinks

The "Denomination Value" represents the specific Country's Currency Type. Check the related Country's Software Information Sheet for specific denominations.

NOTE: Between sequential Banknote insertions, the Color of the Front Panel LED Display will be determined by the Stand-by Mode selections set by the User.

NOTE: If an error or a reject occurs, refer to the Error and Reject Codes listed in Table 10 or Table 11 to identify the cause of the malfunction.

SENSOR TEST

Perform the following steps to verify if the eight (8) Sensors within the VEGA Unit are functional (i.e., the Entrance, Validation, Side Escrow, RC Flap, Stacker and Box Sensors) when using the Paper and Non-paper Calibration Procedures.

1. Ensure the VEGA Unit's Power is OFF.
2. Set DIP Switch Block DS1, Switch #1, #2, #3, #4, & #5 to ON.
3. Turn the VEGA Unit's Power ON.
4. Set DIP Switch Block DS1, Switch #1 to OFF. The Front Panel LED will extinguish (go out). Sensor Confirmation will be Stand-by Mode active.
5. Table 6 and Table 7 list the DIP Switch Block DS2 settings for the Sensor Test Configurations. Select the desired Sensor from the Tables, and set DIP Switch Block DS2 Switches according to the Sensor Configuration Table settings set in Table 6.

Table 6 DIP Switch Block DS2 Sensor Configuration Switch Settings

DIP Switch Block DS2								
Sensor	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Entrance Sensor	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Validation Sensor	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
Side Sensor	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
Escrow Sensor	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
RC Flap Sensor	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
Stacker Flap Sensor	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF
Stack-In Sensor	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF
Box Sensor	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON

Table 7 on page 13 lists the **Yellow** LED States related to the DIP Switch Block DS2 setting chosen in Table 6.

Table 7 DIP Switch Block DS2 Sensor LED State Conditions

Sensor	Yellow LED State	
	Lit	Extinguished
Entrance Sensor	With Paper (Light Interception)	No Paper (Transmissive)
Validation Sensor	With Paper (Light Interception)	No Paper (Transmissive)
Side Sensor	With Paper (Light Interception)	No Paper (Transmissive)
Escrow Sensor	With Paper (Light Interception)	No Paper (Transmissive)
RC Flap Sensor	With Paper (Transmissive)	No Paper (Light Interception)
Stacker Flap Sensor	With Paper (Transmissive)	No Paper (Light Interception)
Stack-In Sensor	With Paper (Light Interception)	No Paper (Transmissive)
Box Sensor	With Paper (Light Interception)	No Paper (Transmissive)

When the selected Sensor detects an object such as a Banknote or a Test Paper, the Front Panel LED Display will blink at a **Yellow** Color Rate. When there is no object detected, the Front Panel LED Display will be extinguished (out).

NON-PC CALIBRATION PROCEDURE

NOTE: Calibration using a PC exists and is found in Section 6, pg. 6-6 of the VEGA Operations and Maintenance Manual.

Begin the Non-PC (No Serial No. Written) Calibration Procedure as Follows:

1. Turn the Vega Unit's Power OFF.
2. Set DIP Switch Block No. 1, Switches #1, #2, & #8 ON, and set DIP Switch Block No. 2 Switches ALL OFF.

   NOTE: DIP Switch Block No. 3 settings are not required to perform this Calibration Procedure.
3. Turn the VEGA Unit's Power ON. The Front Panel LED will slowly blink at a **Green** Color Rate.
4. Set DIP Switch Block No. 1 Switch #1 to OFF.
5. When moving into the Adjustment Mode, the Front Panel LED will slowly blink at a **Cyan** Color Rate.

NOTE: The Adjustment process will begin in Step 6. Do not touch the VEGA Unit while it is adjusting, otherwise the adjustment will not accurately calibrate the Unit.

6. Set DIP Switch Block No. 2, Switch #1 to ON. This action performs the Entrance Sensor's Adjustment Procedure without Reference Paper in place.

NOTE: Keep DIP Switch Block No. 2, Switch #1 ON until prompted to turn it OFF!

NOTE: During the adjustment process, the front Panel LED will flash a Cyan Color at a high rate of speed.

7. Once the Entrance Sensor's Non-paper Adjustment Procedure is complete, the Front Panel LED will slowly blink at a White Light Rate.
8. Set the White Reference Paper, KS-325, in place.
9. Set DIP Switch Block No. 2, Switch #2 to ON. This action performs the Validation Sensor's Adjustment using the White Reference Paper.

NOTE: Keep DIP Switch Block No. 2, Switch #1 & #2 ON until prompted to turn them OFF.

NOTE: During the adjustment process, the Front Panel LED will flash White Light at a high rate of speed.

10. Once the White Reference Paper Validation Sensor Adjustment is complete, the Front Panel LED will slowly blink at a **Blue** Color rate. Remove the White Reference Paper from the Transport Section.
11. Set the Black Reference Paper, KS-326, in place.
12. Set DIP Switch Block No. 2, switch #3 to ON. This action performs the Validation Sensor's Adjustments using the Black Reference Paper.

NOTE: Keep DIP Switch Block No. 2, Switch #1, #2 & #3 ON until prompted to turn them OFF.

NOTE: While the adjustment process is active, the Blue LED will momentarily flash at a high rate of speed.

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13. Once the Black Reference Paper Validation Sensor's Adjustments are complete, the Front Panel LED will slowly blink at a **Purple** Color Rate. Remove the Black Reference Paper from the Transport Section.
14. Set DIP Switch Block No. 2 Switch #4 to ON. This action re-performs the Validation Sensor's non-paper adjustment procedure.

NOTE: Keep DIP Switch Block No. 2, Switches #1, #2, #3, & #4 ON until prompted to turn them OFF.

NOTE: While the adjustment process is active, the Front Panel LED will flash a Purple Color at a high rate of speed.

15. Once the Validation Sensor's Non-paper Adjustment Procedure is complete, the Front Panel LED will slowly blink at a **Green** Color Rate.
16. Set DIP Switch Block No. 2, Switch #5 to ON. This action performs the Edge Sensor's Non-paper Adjustment Procedure.

NOTE: Keep DIP Switch Block No. 2, Switches #1, #2, #3, #4, & #5 ON until prompted to turn them OFF.

NOTE: During the adjustment process, the Front Panel LED will flash a Green Color at a high rate of speed.

17. Once the Edge Sensor's Non-paper Adjustment Procedure is complete, the Front Panel LED will slowly blink at a **Yellow** Color Rate.
18. Set DIP Switch Block No. 2, Switches #1, #2, #3, #4, & #5 OFF in order to write these adjustment results into the VEGA Unit's EEPROM Memory.

NOTE: While writing the data into the EEPROM, the Front Panel LED will flash a Yellow Color at a high rate of speed.

NOTE: If EEPROM data writing fails, all previous adjustment's data will be lost, which may disable the VEGA Unit!

19. Once the data writing procedure is complete, the Front Panel LED will blink at a **Green** Color Rate.
20. Turn the VEGA Unit's Power OFF.

NOTE: If the adjustment of ANY Sensor fails, the Front Panel LED will blink Red. If this error condition occurs, ensure that the procedures were correctly performed, and then re-perform them. Refer to Table 8 for a detailed explanation of each Red Color blink sequence indication.

Table 8 Red LED Blink Rate Errors

LED Colors	Blink Sequence	Error Indication
Red	1 Blink	The Entrance Sensor adjustment has failed.
	2 Blinks	The Entrance Sensor adjustment using White Reference Paper has failed.
	3 Blinks	The Validation Sensor adjustment using Black Reference Paper has failed.
	4 Blinks	The Validation Sensor's Non-Paper adjustment has failed.
	5 Blinks	The Edge Sensor adjustment has failed.
	6 Blinks	The EEPROM data writing process has failed.

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Table 9, Table 10 and Table 11 on the following pages of this Quick Reference Guide list the possible Malfunction LED Error Codes are identified by various LED flash counts and Colors. When Error Codes and Reject Codes are not indicated (e.g., the VEGA's Bezel LEDs are not lit) or not identified in detail, find the probable cause in these Tables and take the appropriate action.

Table 9 LED Diagnostics

LED Symptoms	Causes	Solutions
VEGA is not working (Bezel LED is not lighting)	Power is not supplied.	Check Cable Connections and verify that appropriate Power is supplied.
	Program not activated. Software download incomplete.	Re-download the correct Software.
	Malfunctioning Circuit Board.	Insure that internal Harnesses are connected.
	Interface DIP Switches settings are not correct.	Check that the Interface and the DIP Switch settings are correct.
VEGA is not working (Bezel LED Flashes Yellow	ROM or RAM Malfunctioning.	See Table 10 in this Guide and perform the necessary action required.
VEGA is not working Banknote Jam occurs (Bezel LED flashes Red)	Unit setting is malfunction; Improper connection; Banknote Jam or a foreign object in path.	Insure connections are properly seated. Clear Banknote Jam or foreign object from path. See Table 10 in this Guide for Error Codes and perform the necessary action.
Most Banknotes are rejected (Bezel LED flashes Yellow)	Software not designed to accept current Country's Banknotes.	Check related Country's Software Information Sheet for correct denominations. Download the correct Software.
	DIP Switch settings are incorrect.	Insure DIP Switch settings are properly set.
	Host Machine Banknote accept/inhibit settings may exist.	Check Host Machine command is correct.
	Dirt or foreign objects on Sensors.	Clean the Sensors.

Table 9 LED Diagnostics (Continued)

LED Symptoms	Causes	Solutions
Most Banknotes are rejected (Bezel LED flashes Yellow)	Improper Harness connection; malfunctioning Circuit Board.	Check all Cable Connections; See Table 11 in this Guide for error codes and perform the necessary action required.
	Old Software version; Banknote not supported by Country's Software.	Confirm required denomination and/or desired Country's issued year is correct on Software Information Sheet.
	Dirt or foreign objects on Sensors.	Clean the Sensors.
	Sensor Calibration need to be performed.	See Table 10 for Error Codes and perform necessary action required. Perform Calibration Tests as necessary.

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Table 10 Error Codes

on-line	off-line	Error	Causes and Solutions
Color Flashes (msec)	**Color Flashes (msec)**		
Yellow 1 (300)	Yellow 1 (300)	ROM Error	ROM malfunction. Re-download the current Software. Change CPU Circuit Board.
	Yellow 2 (300)	RAM Error	RAM malfunction. Change CPU Circuit Board.
Red 3 (300)	White 3 (300)	Feed Motor Low Speed	During Feed Motor operation, no pulse inputs exist greater than rated value.
	White 5 (300)	Feed Motor High Speed	During Feed Motor operation, no pulse inputs exist greater than rated value.
	White 7 (300)	Feed Motor Lock-up	During Feed Motor operation, no pulse inputs exist greater than rated value. Error occurs during initialization, or when a Banknote is at a transport position where it can not be returned.
	Purple 5 (300)	Stacker Motor Lock-up	During Stack Motor operation, no pulse inputs exist greater than the rated value.
	Purple 7 (300)	Stacker Motor Gear Problem	The Pusher Mechanism stays in its Home Position while the Stacker Motor is operating.
	Blue 2 (300)	Banknote Transport Slips	An abnormal Banknote transportation error occurs when transporting or rejecting Banknotes. The Transportation Slip Sensors do not detect continuous Banknotes being transported according to the rated value.
	Blue 3 (300)	Transport Times out	An abnormal Banknote transport error occurs when transporting or rejecting Banknotes. The transportation Locks-up or runs too slow. Sensors detect continuous Banknotes being transported according to the rated value.
	Red 3 (300)	Abnormal Timing Response	Sensors detect Banknotes remain in path or none exist during abnormal timing.
	Red 5 (300)	Cash Box Seating	Cash Box Sensors detect a Banknote remains in path or a Cash Box not properly seated.

Table 10 Error Codes (Continued)

on-line Color Flashes (msec)	off-line Color Flashes (msec)	Error	Causes and Solutions
Red 3 (300)	Purple 3 (300)	Pusher Mechanism Position	Pusher Mechanism Home Sensor detects that the Pusher Mechanism is not presently seated at the Home end position.
	Orange 3 (300)	Stacker Full	When the Pusher Mechanism moves toward stacking, the Stacker-full Sensor determined that the time taken is longer than specified value for the function.
	Cyan 3 (100)	Operational Pause*	Intake Sensor detects Banknote at a position where it can not be returned while in the transport process.

* The Flash error pause time between blinks is a 100msec duration.

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Table 11 Reject Codes

on-line	off-line	Error	Causes and Solutions
Color Flashes (msec)	**Color Flashes (msec)**		
Yellow 3 (120)	White 3 (120)	Transport Slip	Sensor does not detect a Banknote even though the number of Banknotes transported is more than the accepted value.
	Red	Transport Time-out	Sensors do not detect movement even though Banknote transportation time is longer than acceptable.
	Yellow		
	Red 3 (120)		
	Blue	Transport Motor Lock-Up	While Feed Motor is operating, no pulse inputs exist greater than the rated value.
	Yellow		
	Blue 3 (120)		
	Green	Transport Speed High	While performing a transportation process, pulse interaction was shorter than the accepted value.
	Purple		
	Green 3 (120)		
	Red 3 (120)	Abnormal Timing Response	Sensor detected a Banknote remaining in path or none present during an abnormal timing interval.
	Yellow	Side Sensor Problem	The Side Sensor detected a Banknote before it passed through the Guide Sensor, and after it passed the Banknote through the Side Sensor.
	White		
	Yellow 3 (120)		
	Purple 3 (120)	Validation Problem	Software does not match the required Country's specification.'
		Validation Problem (Most Banknotes are rejected)	Wrong DIP Switches settings.
			Inhibited validation due to conflicting Host Command settings.
			Adhering foreign objects or dirt on the Sensors.

Table 11 Reject Codes (Continued)

on-line	off-line	Error	Causes and Solutions
Color Flashes (msec)	**Color Flashes (msec)**		
Yellow 3 (120)	Purple 3 (120)	Validation Problem (Only specific Banknotes are rejected or the validation rate is degraded)	Software version old, or a disabled denomination Banknote was inserted.
			Adhering foreign object or dirt on the Sensors.
			Calibrate Sensors (After a disassembly/ reassembly or parts repair/replacement).
	Green 3 (120)	Banknote Length Problem	Short Banknote length exists. While waiting for Validation Sensor detection, the Intake Sensor detected “no-bill” present. Or, while transporting Banknotes, the Escrow Sensor waited for Banknote insertion detection and the Intake Sensor detected a “no-bill” present condition. Long Banknote Length exists: a Banknote was inserted having a length greater than 165mm.
	Blue 3 (120)	Double Banknotes	The Validation Sensor’s transitional level is less than the accepted value. Dirt, stickers, or foreign objects may be on the Banknote.
	Red	Cash Box Seating Problem	Cash Box Sensors detect a Banknote remaining in path.
	Blue		
	Red 3 (120)		
	White	Pusher Mechanism Problem	Pusher Mechanism Home Sensor detects that the Pusher Mechanism is not presently at its Home end position.
	Purple		
	White 3 (120)		

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VEGA™ Units
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